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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/512,145	02/23/00	ZHOU Z	06816/089003

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EXAMINER	
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ART UNIT	**PAPER NUMBER**
2878	

DATE MAILED: 01/16/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/512,145	ZHOU ET AL.	
	Examiner	Art Unit	
	Thanh X Luu	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
18) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other: .

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over either one of the claims 1-6 of U.S. Patent No. 6,057,539 or the claims 1-20 of U.S. Patent No. 5,909,026. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-6 of the '539 patent can be combined to make up the present invention. Furthermore, the limitations of having an in-pixel buffer, selector and a double sampling circuit would have been obvious to a person of ordinary skill in the art in order to reduce noise and provide improved detection. The manner in which the illumination condition is determined and used is a matter of design choice and would only require routine skill in the art.

Similarly, the claims of the '026 patent can be combined to constitute the present invention. The '026 patent further claims (see claim 20) saving a frame and comparing magnitudes to a threshold similar to claims 7 and 12 of the present invention.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Wilder et al. (U.S. Patent 5,262,871).

Regarding claim 1, Wilder et al. disclose (see Figure 1) an adaptive programmable light imaging device comprising: an array of active pixel sensor pixels (10), each pixel producing a signal based only on the received radiation within the pixel; a plurality of programmable summation kernels (see column 5, lines 14-22, superpixels), each summation kernel programmable to selectively sum together a number of the pixels from the active pixel sensor; and a resolution control circuit (18), producing an output signal (resolution level control) which controls a size of the summation kernels between a minimum value kernel size and a maximum value kernel size.

Regarding claim 2, Wilder et al. disclose (see Figure 1) the resolution control circuit (18) monitors a magnitude of a received signal level (16) and changes the size of the summation kernels based on the signals from the pixels.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 3-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilder et al. in view of Carbone et al. (U.S. Patent 5,717,199).

Regarding claim 16, Wilder et al. disclose (see Figure 6) in-pixel selection transistor (T_X or T_Y). Wilder et al. do not explicitly disclose an in-pixel amplifier or a double sampling circuit. However, in-pixel amplifiers and double sampling circuits are notoriously well known in the art. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide in-pixel amplifying and double sampling in order to reduce noise and improve detection in the apparatus of Wilder et al. Wilder et al. also fail to disclose detecting an illumination condition and controlling the size of the summation kernels based on the illumination condition. Carbone et al. disclose (see column 1, lines 9-18) summing pixels at low light levels in order to increase the signal level, reduce noise and increase readout speed. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention

was made to control the summation kernel size based on an illumination condition in the apparatus of Wilder et al. as disclosed by Carbone et al.

Regarding claim 3, Wilder et al. fail to disclose detecting an illumination condition and controlling the size of the summation kernels based on the illumination condition. Carbone et al. disclose (see column 1, lines 9-18) summing pixels at low light levels in order to increase the signal level, reduce noise and increase readout speed. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to control the summation kernel size based on an illumination condition in the apparatus of Wilder et al. as disclosed by Carbone et al.

Regarding claim 4, the minimum kernel size of Wilder et al. is inherently one pixel since the pixel is the unit measure.

Regarding claim 5, the illumination condition is commonly measured by examination of the amplitude or magnitude of a signal. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to measure an illumination condition as claimed in the apparatus of Wilder et al. in view of Carbone et al.

Regarding claim 6, Wilder et al. disclose (see Figure 1) the resolution control circuit (18) includes a digital circuit, a computer.

Regarding claims 7 and 8, comparators are inherently present in the apparatus of Wilder et al. in view of Carbone et al. in order to the control the kernel size based on the illumination condition. The manner in which the processing is conducted is a matter of design choice. It would have been obvious to a person of ordinary skill in the art at the

time the invention was made to provide parallel processing in order to decrease the processing time and improve detection.

Regarding claims 9 and 17, the manner in which an illumination condition is determined is a matter of design choice. It is well known to measure the magnitude of an illumination by examining the signals or counting the pixels that are illuminated or not illuminated.

Regarding claims 10, 11, 18 and 19, the threshold at which the apparatus of Wilder et al. in view of Carbone et al. is set at is a matter of design choice. It would require only routine skill in the art at the time the invention was made to choose a threshold that would optimize the operation of the apparatus.

Regarding claims 12 and 20, Wilder et al. disclose first reading the array then changing the size of the summation kernel. Thus, a first frame is read and stored. It is inherent that only subsequent frames are affected by the control of the apparatus since the first frame is needed to establish an initial illumination state in the apparatus of Wilder et al. in view of Carbone et al.

Regarding claim 13, Wilder et al. disclose (see Figure 6) a selection transistor (T_X or T_Y). Wilder et al. do not disclose a buffer. However, buffers in image read out circuits are notoriously well known. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a buffer transistor in the apparatus of Wilder et al. in view of Carbone et al. in order to provide more accurate detection.

Regarding claims 14 and 15, the choice of calibration is a matter of design choice and is notoriously well known in the art. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to calibrate the apparatus of Wilder et al. in view of Carbone et al. in order to provide consistent detection.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is (703) 305-0539. The examiner can normally be reached on Monday-Friday from 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seungsook Ham, can be reached on (703) 308-4090. The fax phone number for the organization where the application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

txl

January 3, 2001

Que T. Le
Primary Examiner